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Capt. Noble communicates the observations made at Antwerp by the Baron von Ertbon, and MM. de Boë and Schleusner.

The weather was favourable, and at the time of interior contact, the limb of the Sun was of an extreme sharpness such as is very rarely seen.

The interior contact was observed by

	h	m	s		h	m	s	
M. de Boë at	3	31	53·5	M. T. Observatory of =	3	14	14·9	G.M.T.
M. von Ertbon	3	31	54·5	M. de Boë =	3	14	15·9	

No black drop nor ligament was seen: the limb of the Sun reappeared without any deformation.

The observation was thus exceptionally good. M. Schleusner was the first to recognise that a brighter aureola surrounded the planet; and that there was a bright spot on the surface of the planet. The breadth of the aureola was about equal to the radius; the bright spot had the aspect of the Sun's surface, as if this had been seen through a hole. These observations were confirmed by all the observers, with the different instruments.

β Leonis and B.A.C. 3992. By S. W. Burnham, Esq.

Admiral Smyth, in the *Cycle of Celestial Objects*, has noted a very distant companion to *β Leonis*, giving

P = 114   D = 298″.

No star was seen in this place by Powell; but in the opposite quadrant, about the same distance, he found a star of nearly the same magnitude, which he supposed was the one seen by Smyth, there being an error of 180° in the angle given above. This view is supported by the remark in the *Cycle* concerning a 7 magnitude star in the same direction at a greater distance. There is no bright star anywhere near *β* except the one in the *sp* quadrant, which is B.A.C. 3992.

Mr. George Knott, in his recently published work, gives measures of several stars in the field, including the two above referred to, and a very faint one near the place of Smyth. It is not probable that Smyth referred to this star. It is too minute, and does not answer the description in other respects. Errors of this kind are so common in the *Cycle*, and the stars themselves so unimportant, that it is hardly worth while to follow them up. Mr. Knott's measures of three stars in the field are as follows:—

	°	″	
A and B	P = 206·4	D = 282·42	1864·40.
A and E	115·4	303·50	1864·38.
A and D	201·5	1134·3	1864·37.

The last is the 7 magnitude star referred to by Smyth. Looking at *β* with the 18½-inch refractor of the Dearborn Observatory, I noted a star much nearer than any hitherto seen,

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but still too distant to be of any importance, unless as a light test. By a single set of measures I found

P = 345°·0   D = 76″·59   1878·21.

This star is excessively minute, and probably an aperture of at least 12 inches would be required to show it satisfactorily.

The distant large star (D of Mr. Knott's measures) I found to be a fine pair, moderately close, and considerably unequal. From two measures I found

P = 337°·7   D = 1″·52   1878·21   Mags. 6·7 . . . 11·0.

This is a very easy object with the large aperture.

A much more difficult pair was discovered, $2^m\ 17^s$ *p*, and 35′ *n* of *β Leonis*. The components are close and very unequal. One set of measures gave:

P = 73°·4   D = 0″·57   1878·15.

This star is Lalande 22262, 7½ magnitude, but more like 8 mag. to me.

Chicago, April 25.

Observations of Polar and Equatoreal Diameter of Mars, near Opposition 1877, *with Equatoreal Instrument*, 8-*in. aperture*, 110 *in. focal length.* By R. L. J. Ellery, Esq.

1877.	No. of Measures.	Eq. Diam. ″	P. Diam. ″	Micrometer.
27 August	8	24·550	24·185	Double-image micrometer; power 2.
29 August	10	25·488	24·918	D.-I. microm.; power 2.
30 August	20	25·082	25·172	D.-I. microm.; power 3.
6 September	10	26·806	26·171	Parallel-wire micrometer; Barlow lens, power 262.
	20	25·287	25·602	D.-I. microm.; power 3.
	10	25·268	24·747	D.-I. microm.; power 2.
16 September	12	24·137	24·484	D.-I. microm.; power 3.
17 September	20	24·046	23·688	D.-I. microm.; power 2.
22 September	20	22·772	22·947	D.-I. microm.; power 2.
26 September	10	22·248	22·230	D.-I. microm.; power 2.

N.B. The Airy double-image micrometer is supplied with four power lenses, No. 1 being the highest; the *power*, therefore, as spoken of above must be understood to be the power lens used, not the magnifying power.

The measures are not corrected for defect of illumination.

Observatory, Melbourne,
February 21, 1878.

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